UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/597,329	07/20/2006	Javier Del Prado Pavon	US040107	9349

24737   7590   06/24/2009
PHILIPS INTELLECTUAL PROPERTY & STANDARDS
P.O. BOX 3001
BRIARCLIFF MANOR, NY 10510

EXAMINER
ADDY, ANTHONY S

ART UNIT	PAPER NUMBER
2617	

MAIL DATE	DELIVERY MODE
06/24/2009	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

PTOL-90A (Rev. 04/07)

	Application No.	Applicant(s)
Office Action Summary	10/597,329	DEL PRADO PAVON ET AL.
	Examiner	Art Unit	
	ANTHONY S. ADDY	2617	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>20 July 2006</u>.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1-27</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>1-27</u> is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on <u>10 June 2008</u> is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>07/20/2006</u>.

4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____ .

DETAILED ACTION

Information Disclosure Statement

1.   The references listed in the Information Disclosure Statement filed on July 20,

2006 have been considered by the examiner (see attached PTO-1449 form or

PTO/SB/08A and 08B forms).

Specification

2.   The following guidelines illustrate the preferred layout for the specification of a utility application. These guidelines are suggested for the applicant's use.

Arrangement of the Specification

3.   As provided in 37 CFR 1.77(b), the specification of a utility application should include the following sections in order. Each of the lettered items should appear in upper case, without underlining or bold type, as a section heading. If no text follows the section heading, the phrase "Not Applicable" should follow the section heading:

(a) TITLE OF THE INVENTION.
(b) CROSS-REFERENCE TO RELATED APPLICATIONS.
(c) STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR
     DEVELOPMENT.
(d) THE NAMES OF THE PARTIES TO A JOINT RESEARCH AGREEMENT.
(e) INCORPORATION-BY-REFERENCE OF MATERIAL SUBMITTED ON A
     COMPACT DISC.

(f) BACKGROUND OF THE INVENTION.
     (1) Field of the Invention.
     (2) Description of Related Art including information disclosed under 37
          CFR 1.97 and 1.98.
(g) BRIEF SUMMARY OF THE INVENTION.
(h) BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING(S).
(i) DETAILED DESCRIPTION OF THE INVENTION.
(j) CLAIM OR CLAIMS (commencing on a separate sheet).
(k) ABSTRACT OF THE DISCLOSURE (commencing on a separate sheet).
(l) SEQUENCE LISTING (See MPEP § 2424 and 37 CFR 1.821-1.825. A
     "Sequence Listing" is required on paper if the application discloses a
     nucleotide or amino acid sequence as defined in 37 CFR 1.821(a) and if

the required "Sequence Listing" is not submitted as an electronic
document on compact disc).

4.   The disclosure is objected to because of the following informalities: The

specification does not include section headings, which appear in upper case, without

underlining or bold type.

Appropriate correction is required.

Claim Objections

5.   **Claim 25** is objected to because it includes reference characters which are not

enclosed within parentheses. For example, claim 25 recites "RTS 202", however the

reference character "202" is not enclosed within parentheses.

Reference characters corresponding to elements recited in the detailed

description of the drawings and used in conjunction with the recitation of the same

element or group of elements in the claims should be enclosed within parentheses so

as to avoid confusion with other numbers or characters which may appear in the claims.

See MPEP § 608.01(m).

Claim Rejections - 35 USC § 102

6.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public
use or on sale in this country, more than one year prior to the date of application for patent in the United
States.

7.   **Claims 1-8, 10-20** and **22-27** are rejected under 35 U.S.C. 102(b) as being

anticipated by **Del Prado, WO 02/93831 A2 (hereinafter Del Prado)**.

Regarding claim 1, Del Prado discloses a wireless network (see fig. 1),

comprising:

a source (*e.g., access point, AP$_1$*) that transmits a signal (*e.g., a Request-to-send

RTS packet*) to at least one destination (*e.g., STA$_{1,1}$*) during a scheduled time period

(*e.g., a Contention Free Period "CFP" between "RTS" end and "ACK" end*) (see page 7,

lines 1-3 and fig. 3); and

at least one node, which is hidden from the destination (*e.g., STA$_{2,1}$ which is

hidden from the destination node STA$_{1,1}$*), and which transmits a signal during the

scheduled time period (*i.e., the Contention Free Period "CFP"*) (see page 7, lines 2-17

and fig. 1).

Regarding claim 2, Del Prado teaches all the limitations of claim 1. In addition,

Del Prado teaches a wireless network, wherein the source transmits a request to send

(RTS) to the at least one destination and the RTS includes a transmission duration and

recipient information (*i.e., reads on the teaching of Del Prado that the RTS frame

received at the destination includes a Duration/ID value and a destination address (DA)

to identify a destination station*) (see page 3, lines 17-18, page 7, lines 2-6 and page 8,

lines 10-13).

Regarding claim 3, Del Prado teaches all the limitations of claim 2. In addition,

Del Prado teaches a wireless network, wherein at least one node (*i.e., STA$_{2,1}$*) does not

receive the RTS (*i.e., reads on the teaching of Del Prado that STA$_{2,1}$ is out of the range*

of the source AP₁ hence STA₂,₁ does not receive the RTS frame transmitted by the

source AP₁) (see page 2, lines 13-15 and fig. 1).

Regarding claim 4, Del Prado teaches all the limitations of claim 3. In addition,

Del Prado teaches a wireless network, wherein the destination (*i.e., the STA₁,₁*) sends

a clear to send (CTS) transmission to the source after receiving the RTS, and at least

one node that receives the RTS does not receive the CTS (*i.e., reads on the teaching of*

Del Prado that STA₁,₁ responds with a clear to send (CTS) transmission to the source

AP₁ after receiving the RTS, however if a station like for instance AP2 is outside the

transmitting range of STA₁,₁ that station would not be able to receive the CTS) (see page

7, lines 2-3 and figs. 1 & 3).

Regarding claim 5, Del Prado teaches all the limitations of claim 4. In addition,

Del Prado teaches a wireless network, wherein the network includes at least one node

that receives the CTS (*e.g., the source AP₁ receives a CTS from STA₁,₁*) (see page 7,

lines 2-3 and fig. 3).

Regarding claim 6, Del Prado teaches all the limitations of claim 2. In addition,

Del Prado teaches a wireless network, wherein at least one node in the network

receives the RTS and sets at least one network allocation vector during which the at

least one node does not transmit (*i.e., reads on the teaching of Del Prado that STA₁,₂*

will set up a network allocation vector (NAV) with the Duration/ID value in the received

RTS frame, and will not interfere with the transmission between STA₁,₁ and AP₁

following the RTS/CTS exchange) (see page 7, lines 2-7).

Regarding claim 7, Del Prado teaches all the limitations of claim 6. In addition, Del Prado teaches a wireless network, wherein the at least one node that receives the RTS transmits during at least a portion of the scheduled time period (*i.e., reads on the teaching of Del Prado that STA$_{1,1}$ responds with a clear to send (CTS) transmission to the source AP$_1$ after receiving the RTS*) (see page 7, lines 1-3 and fig. 3) .

Regarding claim 8, Del Prado teaches all the limitations of claim 5. In addition, Del Prado teaches a wireless network, wherein the at least one node that receives the CTS does not transmit during the scheduled time period (*i.e., reads on the teaching of Del Prado that STA$_{1,2}$ will set up a network allocation vector (NAV) with the Duration/ID value in the received RTS frame, and will not interfere with the transmission between STA$_{1,1}$ and AP$_1$ following the RTS/CTS exchange*) (see page 7, lines 2-7).

Regarding claim 10, Del Prado teaches all the limitations of claim 1. In addition, Del Prado teaches a wireless network, wherein the transmission during the scheduled time period (*i.e., the Contention Free Period "CFP"*) includes at least one data frame (*e.g., an RTS/CTS data frame*) (see page 7, lines 1-7 and fig. 3).

Regarding claim 11, Del Prado teaches all the limitations of claim 1. In addition, Del Prado teaches a wireless network, wherein the source transmits a frame to at least one destination and the frame includes transmission duration and recipient information (*i.e., reads on the teaching of Del Prado that the RTS frame transmitted by the source AP$_1$ and received at the destination includes a Duration/ID value and a destination address (DA) to identify a destination station*) (see page 3, lines 17-18, page 7, lines 2-6 and page 8, lines 10-13).

Regarding claim 12, Del Prado teaches all the limitations of claim 11. In addition, Del Prado teaches a wireless network, wherein the destination sends a response transmission to the source after receiving the frame and at least one node that receives the frame does not receive the response (*i.e., reads on the teaching of Del Prado that STA₁,₁ responds with a clear to send (CTS) transmission to the source AP₁ after receiving the RTS, however if a station like for instance AP2 is outside the transmitting range of STA₁,₁ that station would not be able to receive the CTS*) (see page 7, lines 2-3 and figs. 1 & 3).

Regarding claim 13, Del Prado discloses a method of wireless communication in a wireless network (see figs. 1 & 3), the method comprising:

providing a source (*e.g., access point, AP₁*) that transmits a signal (*e.g., a Request-to-send RTS packet*) to at least one destination (*e.g., STA₁,₁*) during a scheduled time period (*e.g., a Contention Free Period "CFP" between "RTS" end and "ACK" end*) (see page 7, lines 1-3 and fig. 3); and

providing at least one node which is hidden from the destination (*e.g., STA₂,₁ which is hidden from the destination node STA₁,₁*), and which transmits a signal during the scheduled time period (*i.e., the Contention Free Period "CFP"*) (see page 7, lines 2-17 and fig. 1).

Regarding claim 14, Del Prado teaches all the limitations of claim 13. In addition, Del Prado teaches a method, wherein the source transmits a request to send (RTS) to the at least one destination and the RTS includes a duration value and recipient information (*i.e., reads on the teaching of Del Prado that the RTS frame received at the*

destination includes a Duration/ID value and a destination address (DA) to identify a destination station) (see page 3, lines 17-18, page 7, lines 2-6 and page 8, lines 10-13).

Regarding claim 15, Del Prado teaches all the limitations of claim 14. In addition, Del Prado teaches a method, wherein at least one node (*i.e., $STA_{2,1}$*) in the network does not receive the RTS (*i.e., reads on the teaching of Del Prado that $STA_{2,1}$ is out of the range of the source AP_1 hence $STA_{2,1}$ does not receive the RTS frame transmitted by the source AP_1*) (see page 2, lines 13-15 and fig. 1).

Regarding claim 16, Del Prado teaches all the limitations of claim 14. In addition, Del Prado teaches a method, wherein the destination sends a clear to send (CTS) transmission to the source after receiving the RTS, and at least one node that receives the RTS does not receive the CTS (*i.e., reads on the teaching of Del Prado that $STA_{1,1}$ responds with a clear to send (CTS) transmission to the source AP_1 after receiving the RTS, however if a station like for instance AP2 is outside the transmitting range of $STA_{1,1}$ that station would not be able to receive the CTS*) (see page 7, lines 2-3 and figs. 1 & 3).

Regarding claim 17, Del Prado teaches all the limitations of claim 16. In addition, Del Prado teaches a method, wherein the network includes at least one node that receives the CTS (*e.g., the source AP_1 receives a CTS from $STA_{1,1}$*) (see page 7, lines 2-3 and fig. 3).

Regarding claim 18, Del Prado teaches all the limitations of claim 15. In addition, Del Prado teaches a method, wherein at least one node in the network receives the RTS and sets at least one network allocation vector (NAV) during which the at least one

node does not transmit (*i.e., reads on the teaching of Del Prado that $STA_{1,2}$ will set up a network allocation vector (NAV) with the Duration/ID value in the received RTS frame, and will not interfere with the transmission between $STA_{1,1}$ and AP_1 following the RTS/CTS exchange*) (see page 7, lines 2-7).

Regarding claim 19, Del Prado teaches all the limitations of claim 18. In addition, Del Prado teaches a method, wherein the at least one node that receives the RTS transmits during at least a portion of the scheduled time period (*i.e., reads on the teaching of Del Prado that $STA_{1,1}$ responds with a clear to send (CTS) transmission to the source AP_1 after receiving the RTS*) (see page 7, lines 1-3 and fig. 3).

Regarding claim 20, Del Prado teaches all the limitations of claim 17. In addition, Del Prado teaches a method, wherein the at least one node that receives the CTS does not transmit during the scheduled time period (*i.e., reads on the teaching of Del Prado that $STA_{2,1}$ will set up a network allocation vector (NAV) with the Duration/ID value in the received RTS frame, and will not interfere with the transmission between $STA_{1,1}$ and AP_1 following the RTS/CTS exchange*) (see page 7, lines 2-7).

Regarding claim 22, Del Prado teaches all the limitations of claim 13. In addition, Del Prado teaches a method, wherein the transmission during the scheduled time period (*i.e., the Contention Free Period "CFP"*) includes at least one data frame (*e.g., an RTS/CTS data frame*) (see page 7, lines 1-7 and fig. 3).

Regarding claim 23, Del Prado teaches all the limitations of claim 13. In addition, Del Prado teaches a method, wherein the source transmits a frame to at least one destination and the frame includes a duration value and recipient information (*i.e., reads*

on the teaching of Del Prado that the RTS frame transmitted by the source AP_1 and

received at the destination includes a Duration/ID value and a destination address (DA)

to identify a destination station) (see page 3, lines 17-18, page 7, lines 2-6 and page 8,

lines 10-13).

Regarding claim 24, Del Prado teaches all the limitations of claim 23. In addition,

Del Prado teaches a method, wherein the destination sends a response transmission to

the source after receiving the frame and at least one node that receives the frame does

not receive the response (*i.e., reads on the teaching of Del Prado that $STA_{1,1}$ responds*

with a clear to send (CTS) transmission to the source AP_1 after receiving the RTS,

however if a station like for instance AP2 is outside the transmitting range of $STA_{1,1}$ that

station would not be able to receive the CTS) (see page 7, lines 2-3 and figs. 1 & 3).

Regarding claim 25, Del Prado teaches all the limitations of claim 2. In addition,

Del Prado teaches a wireless network, wherein a header of the RTS may include an

offset in addition to a duration value and an identification of the destination, and the

offset specifies a time between the end of the reception of the RTS and the time that a

network allocation vector (NAV) is set (*i.e., reads on the teaching of Del Prado that the*

RTS frame transmitted by the source AP_1 and received at the destination includes a

Duration/ID value and a destination address (DA) to identify a destination station and an

$STA_{1,2}$ will set up a NAV with the Duration/ID value) (see page 3, lines 17-18, page 7,

lines 2-6 and page 8, lines 10-13).

Regarding claim 26, Del Prado teaches all the limitations of claim 4. In addition,

Del Prado teaches a wireless network, further comprising at least one node, which

receives both the RTS and the CTS (*i.e., $STA_{1,2}$ receives both the RTS and the CTS since $STA_{1,2}$ is within range of AP_1 and $STA_{1,1}$ and Del Prado further teaches $STA_{1,2}$ will set up the NAV with the Duration/ID value in the received RTS frame and will not interfere with transmission between $STA_{1,1}$ and AP_1 following the RTS/CTS exchange*) (see page 7, lines 5-7 and fig. 1).

Regarding claim 27, Del Prado teaches all the limitations of claim 17. In addition, Del Prado teaches a method, wherein the network includes at least one node, which receives both the RTS and the CTS. (*i.e., $STA_{1,2}$ receives both the RTS and the CTS since $STA_{1,2}$ is within range of AP_1 and $STA_{1,1}$ and Del Prado further teaches $STA_{1,2}$ will set up the NAV with the Duration/ID value in the received RTS frame and will not interfere with transmission between $STA_{1,1}$ and AP_1 following the RTS/CTS exchange*) (see page 7, lines 5-7 and fig. 1).

Claim Rejections - 35 USC § 103

8.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

        1.   Determining the scope and contents of the prior art.

2.   Ascertaining the differences between the prior art and the claims at issue.
3.   Resolving the level of ordinary skill in the pertinent art.
4.   Considering objective evidence present in the application indicating obviousness or nonobviousness.

9.   Claims 9 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Del Prado, WO 02/93831 A2 (hereinafter Del Prado)**.

Regarding claim 9, Del Prado teaches all the limitations of claim 8. Del Prado fails to explicitly teach a wireless network, wherein the at least one node that receives the CTS transmits during a transmission of an acknowledgement (ACK) by the at least one destination.

However, Del Prado teaches for example that the *$STA_{1,2}$ will set up a network allocation vector (NAV) with the Duration/ID value in the received RTS frame, and will not interfere with the transmission between $STA_{1,1}$ and AP_1 following the RTS/CTS exchange* (see page 7, lines 2-7). One of ordinary skill in the art further recognizes that based on the teaching of Del Prado above, it would have been obvious for at least $STA_{1,2}$ to transmit during the completion of an RTS/CTS exchange and when the destination sends an acknowledgement (ACK), since the destination (i.e., $STA_{1,1}$) is not receiving and hence as indicated by the teachings of Del Prado, $STA_{1,2}$ would not interfere with $STA_{1,1}$ and AP_1.

It would therefore have been obvious to one of ordinary skill in the art at the time of the invention to modify Del Prado to include a wireless network, wherein the at least one node that receives the CTS transmits during a transmission of an acknowledgement (ACK) by the at least one destination, in order to reduce interference

between stations within the wireless network as taught by Del Prado (see page 7, lines 2-7).

Regarding claim 21, Del Prado teaches all the limitations of claim 20. Del Prado fails to explicitly teach a method, wherein the at least one node that receives the CTS transmits during a transmission of an acknowledgement (ACK) by the at least one destination.

However, Del Prado teaches for example that the $STA_{1,2}$ *will set up a network allocation vector (NAV) with the Duration/ID value in the received RTS frame, and will not interfere with the transmission between* $STA_{1,1}$ *and* AP_1 *following the RTS/CTS exchange* (see page 7, lines 2-7). One of ordinary skill in the art further recognizes that based on the teaching of Del Prado above, it would have been obvious for at least $STA_{1,2}$ to transmit during the completion of an RTS/CTS exchange and when the destination sends an acknowledgement (ACK), since the destination (i.e., $STA_{1,1}$) is not receiving and hence as indicated by the teachings of Del Prado, $STA_{1,2}$ would not interfere with $STA_{1,1}$ and AP_1.

It would therefore have been obvious to one of ordinary skill in the art at the time of the invention to modify Del Prado to include a method, wherein the at least one node that receives the CTS transmits during a transmission of an acknowledgement (ACK) by the at least one destination, in order to reduce interference between stations within the wireless network as taught by Del Prado (see page 7, lines 2-7).

Conclusion

10.   The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Sherman, U.S. Patent Number 7,046,690 discloses interference suppression methods for 802.11.

Cervello et al., U.S. Patent Number 7,054,329 discloses collision avoidance in IEEE 802.11 contention free period (CFP) with overlapping basic service sets (BSS).

Wu et al., U.S. Patent Number 7,397,785 discloses method for enhancing fairness and performance in a multihop ad hoc network and corresponding system.

Hieda et al., U.S. Patent Number 5,592,483 discloses data communication apparatus achieving efficient use of the media.

11.   Any inquiry concerning this communication or earlier communications from the examiner should be directed to ANTHONY S. ADDY whose telephone number is (571)272-7795. The examiner can normally be reached on Mon-Thur 8:00am-6:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Edouard can be reached on 571-272-7603. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see http://pair-direct.uspto.gov. Should

you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a

USPTO Customer Service Representative or access to the automated information

system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Anthony S Addy/
Examiner, Art Unit 2617